



Docket No.: 10964-057001 Client Ref. No.: Case 765

What is claimed is:

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CLAIMS

A method of operating a fuel cell system comprising a fuel cell stack and a plurality of fuel cells associated with the fuel cell stack, the method comprising:

monitoring an operating parameter associated with the fuel cell stack; and adjusting a temperature of the fuel cell stack based on the operating parameter.

- 2. The method of claim 1, wherein the operating parameter is a voltage of a fuel cell.
- 3. The method of claim 1, wherein the operating parameter is a power output from the fuel cell system.
- 4. The method of claim 1, wherein the operating parameter is a temperature of a fuel cell associated with the fuel cell stack.
- 5. The method of claim 1, wherein adjusting the temperature comprises adjusting coolant flow through the fuel cell stack.
- 6. The method of claim 5, wherein adjusting coolant flow comprises restricting coolant flow through the fuel cell stack.
- 7. The method of claim 6, wherein adjusting coolant flow further comprising unrestricting coolant flow through the fuel cell stack.
- 8. The method of claim 7, wherein restricting and unrestricting coolant flow are performed as a function of time.
- 9. The method of claim 7, wherein restricting and unrestricting coolant flow are performed to cause the operating parameter to be a predetermined level.



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- 10. The method of claim 9, wherein the predetermined level is within about 15% of an operating parameter under normal operation of the fuel cell system.
- 11. The method of claim 1, wherein the fuel cell system further comprises a first end plate associated with a first end of the fuel cell stack, and the method further comprises heating the first end plate.
- 12. The method of claim 11, wherein heating the first end plate comprises heating a first heating element different than the first end plate.
- 13. The method of claim 12, wherein the first heating element is adjacent to the first end plate.
- 14. The method of claim 12, wherein the first heating element is disposed between the first end plate and the fuel cell stack.
 - 15. The method of claim 11, further comprising: flowing a fluid through a flow channel defined by the first end plate.
 - 16. The method of claim 15, wherein the fluid is heated.
 - 17. The method of claim 11, further comprising: heating the first end plate with a heating element disposed on the first end plate.
 - 18. The method of claim 11, wherein the heating is performed electrically.
 - 19. The method of claim 11, further comprising: heating a second end plate associated with the fuel cell stack.
- 20. The method of claim 19, wherein heating the second end plate comprises heating a second heating element different than the second end plate.

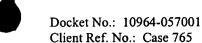


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- 21. The method of claim 20, wherein the second heating element is adjacent to the second end plate.
- 22. The method of claim 20, wherein the second heating element is between the second end plate and the fuel cell stack.
 - 23. The method of claim 1, wherein the method is performed as a feedback loop.
- 24. A method of operating a fuel cell system comprising a fuel cell stack and a plurality of fuel cells associated with the fuel cell stack, the method comprising:

monitoring voltages of a set of fuel cells; and
restricting coolant flow through the fuel cell stack when one or more of the monitored
voltages deviates from a predetermined voltage range.

- 25. The method of claim 24, wherein the set of fuel cells includes all the fuel cells associated with the fuel cell stack.
- 26. The method of claim 24, wherein restricting coolant flow is performed when one or more of the monitored voltages deviate by more than about 10% from an operating voltage under normal operation of the fuel cell system.
- 27. The method of claim 24, further comprising unrestricting coolant flow through the fuel cell stack.
- 28. The method of claim 27, wherein unrestricting coolant flow is performed when the monitored voltages are in the predetermined voltage range.
- 29. The method of claim 27, wherein unrestricting coolant flow is performed after a predetermined time of restricting coolant flow.



30. The method of claim 24, wherein the fuel cell stack further comprises a first end plate associated with the fuel cell stack, the method further comprising:

monitoring an operating parameter of the fuel cell system; and adjusting a temperature of the first end plate based on the operating parameter.

- 31. The method of claim 30, wherein adjusting the temperature comprises heating a first heatable element.
- 32. The method of claim 30, wherein adjusting the temperature comprises flowing a fluid through the first end plate.
- 33. The method of claim 30, further comprising: adjusting a temperature of a second end plate associated with the fuel cell stack based on the operating parameter.
- 34. The method of claim 30, wherein the operating parameter is a power output of the fuel cell system.
- 35. The method of claim 30, wherein the operating parameter is a temperature of the fuel cell stack.
- 36. The method of claim 31, wherein the operating parameter is a temperature of the first heatable element.
- 37. The method of claim 31, wherein the heatable element is adapted to heat an outer periphery of the fuel cell stack.
 - 38. The method of claim 24, wherein the method is performed as a feedback loop.